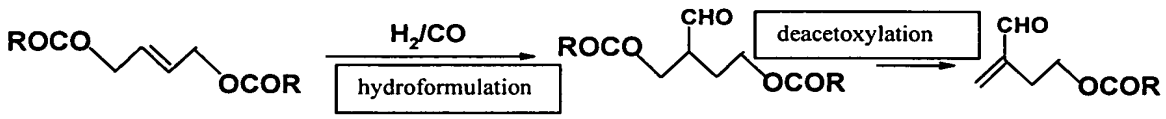
CLAIMS

1. An improved process for preparing the esters of γ-hydroxy tiglic aldehydes, said process comprising;

hydroformylation of biscarboxylic esters of but-2-ene-1, 4-diol having the general formula 1, wherein R is C_1 to C_{12} alkyl or aryl, followed by deacetoxylation of its hydroformylation compound, having the general formula 2, in the presence of organo metallic heterogeneous catalyst, hydrogen, carbon monoxide at elevated temperatures and in presence of solvent to obtain desired Esters of hydroxy tiglic aldehydes having the general formula 3.



(R can be an alkyl or aryl group)

1 2 3

Reaction Scheme-I

2. The process as claimed in Claim 1, wherein the biscarboxylic esters of but-2-ene-1,4-diols are selected from the group comprising butene-2-diol-1,4-diacetate, butene-2-diol-1,4-diformate, butene-2-diol-1,4-dipropionate, butene-2-diol-1,4-dibutyrate,butene-2-diol-1,4-diisobutyrate,butene-2-diol-1,4-dipalmitate, butene-2-diol-1,4-dibenzoate.

3. The process as claimed in Claim 1, wherein the organo metallic heterogeneous catalyst is selected from the group comprising Rhodium complex anchored, tethered or entrapped on a heterogeneous support.

4. The process as claimed in Claim 3, wherein the Rhodium metal complex having a general formula

$$HRh(CO)L_3,$$

Wherein:

L represents a ligand, characterized by the presence of at least one heteroatom selected from the group containing Nitrogen, Phosphorus, oxygen or a combination thereof.

5. The process as claimed in claim 4, wherein ligand used are monodentate or multidentate.

6. The process as claimed in claim 5, wherein the monodentate ligands are selected from the group comprising trialkyl, triaryl or arylalkyl phosphines.

7. The process as claimed in claim 5, wherein the multidentate are selected from the group comprising diphenyl phosphino, methane, diphenyl phosphino ethane, diphenyl phosphino propane, diphenyl phosphino butane, 2-diphenylphosphino-[N-(2-diphenylphosphino) oxy] ethyl]- Nmethyl]-benzamine.

8. The process as claimed in Claim 3, wherein the organo metallic Rhodium complex $HRh(CO)L_3$, is anchored to the internal surface of MCM-41 or MCM-48 in presence of an anchoring agent.

9. The process as claimed in claim 8, wherein the anchoring agent used are a functionalized-alkyl-substituted (Z-$[CH_2]_n$-) silane containing at least one alkoxy group (-OR) attached to the silicon atom, having a general formula of **Z-$(CH_2)_n$-$Si(OR)_mH_{3-m}$** wherein Z is a functional group as $-NH_2$, -SH, vinyl, allyl etc., "n" may have integral values between 2 and 6, "m" may have integral values between 1 and 3 and represented

10. The process as claimed in Claim 3, wherein the organo metallic complex $HRh(CO)L_3$, is tethered on the surface of the heterogeneous support by means of an inorganic heteropolyacid (HPA).

11. The process as claimed in claim 10, wherein the tethering moiety used for anchoring the transition metal complex to the solid matrix are an inorganic heteropoly acid, having the primary Keggin ion structure.

12. The process as claimed in claim 10, wherein the HPA used are phosphotungstic acid and phosphomolybdic acid.

13. The process as claimed in Claim 3, wherein the organometallic complex $HRh(CO)L_3$, is entrapped inside the microporous hosts.

14. The process as claimed in Claim 1, wherein the solvents used are conventional inert organic solvent or hydrocarbon solvents.

15. The process as claimed in Claim 1, wherein hydrocarbon solvent used are selected from the group comprising benzene, xylene, toluene, cyclohexane, isooctane, hexane, ethers such as diethyl ether, tetrahydrofuran or dioxane, esters such as ethyl acetate or methyl propionate: or alcohols such as methanol or n-butane.

16. The process as claimed in Claim 1, wherein the process is carried out in the presence of carbon monoxide and hydrogen in a volumetric ratio in the range of 1:2 to 2:1,

17. The process as claimed in Claim 16, wherein the process is carried out in the presence of carbon monoxide and hydrogen in a volumetric ratio of 1:1.

18. The process as claimed in claim 1, wherein the reaction is carried out at a pressure in the range 10-1000 atmospheres.

19. The process as claimed in claim 18, wherein the reaction is carried out at a pressure in the range 10-140 atmospheres.

20. The process as claimed in Claim 1, wherein the process is carried out in the range of 50-120°C.

21. The process as claimed in claim 1, wherein thus obtained esters of hydroxy tiglic aldehydes have selectivity of about 100 %.